

REMARKS

Initially, in the Office Action dated July 11, 2005, the Examiner objects to claims 10 and 22-24 as being improper. Claims 1-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,845,395 (Blumenau et al.) in view of U.S. Patent No. 5,625,795 (Sakakura et al.).

By the present response, Applicants have amended claims 1, 2, 5, 9, 10, 12, 14-16, 20 and 22-24 to further clarify the invention. Claims 1-24 remain pending in the present application.

Claim Objections

Claims 10 and 22-24 have been objected to under 37 C.F.R. §1.75(c). Applicants have amended these claims to further clarify the invention and respectfully request that these objections be withdrawn.

35 U.S.C. §103 Rejections

Claims 1-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Blumenau et al. in view of Sakakura et al. Applicants respectfully traverse these rejections.

Blumenau et al. discloses managing the availability and assignment of data in a storage system that is coupled to a network. A user interface is provided that executes on a host processor that is coupled to the storage system over the network. The user interface communicates with a configuration database in the storage system to identify host processors that are logged into the host storage system over the network. The user interface communicates with a configuration database in the

storage system over the network, to identify storage volumes on the storage system, to identify whether access to a particular storage volume on the storage system is permitted from a particular host processor, and to identify a network path by which host processor are logged into the storage system over the network.

Sakakura et al. discloses an exclusive control unit among computers which can reliably perform an exclusive control for a shared resource while keeping a system running as a whole even if a problem occurs in any of the computers in the system. Each of the computers is connected to the others through a LAN and to a distributed shared memory bus for connecting each distributed shared memory card mounted on each computer with the others. The distributed shared memory card has a distributed shared memory, which shares the shared resource with the other distributed shared memories, and a distributed shared memory controller which is connected with the distributed shared memory bus for making it possible to exchange data among the distributed shared memories mounted on the computers.

Regarding claims 1, 2, 5, 9, 12, 15, 16, 18 and 20 Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of these claims.

Regarding claim 1, for example, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose or suggest, inter alia, generating an interrupt by an external storage system to a management server. The Examiner asserts that Blumenau et al. discloses these limitations in Fig. 8A, signs 110 and 120, and col. 13, lines 51-56. However, these portions merely disclose that after a

HBA has won arbitration it issues a control data block to the storage system. This is not generating an interrupt by an external storage system to a management server, as recited in the claims of the present application. Blumenau et al. discloses issuing a control data block from the HBA to the storage system.

Further, the cited references do not disclose or suggest receiving by a management server, configuration information from the external storage system in response to the command. The Examiner asserts that these limitations are disclosed in Blumenau et al. at col. 8, lines 12-27 and col. 9, lines 17-22. However, these portions merely disclose that configuration data may be stored in a memory at the storage system where a configuration database at the storage systems stores information regarding which ones of the HBAs have access to which one of the volumes. This is not receiving by a management server, configuration information from an external storage system in response to a command, as recited in the claims of the present application. Blumenau et al. merely discloses that configuration information is stored at a storage system. This is not sending configuration information from the external storage system to a management server in response to a command. Further, Blumenau et al. does not disclose or suggest anything related to a management server, but merely discloses host devices and a storage system.

Moreover, Applicants submit that none of the cited references disclose or suggest storing in a database at a management server the configuration information received by the management server. The Examiner asserts that these limitations are disclosed in Blumenau et al. at Fig. 13, col. 8, lines 12-27 and col. 9, lines 8-37.

However, as noted previously, Blumenau et al. discloses storing configuration information at the storage system. This is not storing in a database at a management server configuration information received from an external storage system, as recited in the claims of the present application.

The Examiner admits that Blumenau et al. does not disclose or suggest issuing an exclusive control command by a management server to an external storage system but asserts that Sakakura et al. discloses these limitations in the title, abstract, Fig. 4, sign 402, col. 2, lines 47-59 and col. 4, lines 43-58. However, these portions of Sakakura et al. merely disclose an exclusive control program contained in a computer that performs an exclusive control for a shared resource shared among the plurality of computers connected with one another through a network.

Sakakura et al. relates to a plurality of computers sharing a storage device via a network (see Fig. 1). These are not a management server or external storage system, as recited in the claims of the present application. Further, these portions of Sakakura et al. do not disclose or suggest issuing an exclusive control command by a management server to an external storage system.

Further, none of the cited references disclose or suggest logging onto a management server to request access permission. The Examiner asserts that these limitations are disclosed in Blumenau et al. at col. 35, lines 27-31 and col. 36, lines 21-34. However, these portions merely disclose that a processor is programmed to store a network identifier that identifies a network address of one of the network devices that is logged into the storage system. This is not logging onto

a management server to request access permission, as recited in the claims of the present application. Blumenau et al. discloses a network device being logged onto a storage system.

Regarding claim 9, Applicants submit that none of the cited references disclose or suggest the limitations in the combination of this claim of, inter alia, instructing a management server to change configuration information. The Examiner asserts that these limitations are disclosed in Blumenau et al. at col. 6, lines 46-65 and col. 8, lines 12-27, and col. 9, lines 8-22. However, these portions merely disclose that a system administrator tracks host devices coupled to the network and the available volumes at the storage system and allocates storage system volumes to a host accordingly, and that the configuration data stored in a memory at the storage system may be updated by the system administrator as hosts enter and exit the network. This is not instructing a management server to change configuration information, as recited in the claims of the present application. As noted previously, the configuration information in Blumenau et al. is stored and updated at the storage system. Further, Applicants submit that none of the cited references disclose or suggest receiving by a management server the completion of a setting of the configuration information from the external storage systems in response to the command, as recited in the claims of the present application. The Examiner asserts that these limitations are disclosed in Blumenau et al. at col. 8, lines 12-27 and col. 9, lines 17-22. However, as noted previously, these portions merely disclose that a system administrator may update the configuration information stored at the

storage system in a configuration database that includes which ones of the HBAs have access to which ones of the volumes. This has nothing to do with receiving by a management server the completion of a setting of the configuration information from the external storage system, as recited in the claims of the present application. These portions merely disclose that an administrator may update the configuration database stored at the storage system. Similarly, none of the cited references disclose storing in a database at the management server, a change of the configuration information, since the configuration information in Blumenau et al. is stored at the storage system.

Regarding claim 12, Applicants submit that none of the cited references disclose or suggest activating application programs of the multiple computers based on the exclusive control command issued by the management server. The Examiner asserts that these limitations are disclosed in Blumenau et al. at col. 8, lines 12-27 and col. 9, lines 17-22. However, as noted previously, these portions of Blumenau et al. merely disclose that a system administrator may update the configuration information stored at the storage system in a configuration database that includes which ones of the HBAs have access to which ones of the volumes. This is not activating application programs of multiple computers based on an exclusive control command issued by a management server, as recited in the claims of the present application. These portions of Blumenau et al. do not disclose or suggest anything related to activating an application program, or an exclusive control command being issued by a management server. In addition, receiving host logical

configuration information and storing in a database at the management server are also not disclosed by the cited references.

Regarding claim 15, Applicants submit that none of the cited references disclose or suggest inputting a file type and time that the multiple computers use, to the management server. The Examiner asserts that these limitations are disclosed in Blumenau et al. at Figs. 13, 19, 20 and col. 30, lines 1-19. However, these portions of Blumenau et al. merely disclose a flow diagram illustrating assigning an identifier to network devices in a storage network, and management windows showing a second step and third step in the configuration process for configuring access to specific ports on a storage system using a graphical user interface, and that a management window of a graphical user interface including pull down menus can be used to manage network devices and access to data stored on a storage system and execute operations such as adding and deleting access of a host/HBA pair to one or more storage volumes. This is not inputting a file type and time that the multiple computers use, to the management server, as recited in the claims of the present application. These portions of Blumenau et al. merely disclose a GUI with pull down menus that may be used by an administrator to perform the management task discussed previously. These portions do not disclose or suggest anything related to inputting a file type and time that multiple computers use. Further, the Examiner asserts that Blumenau et al. discloses retrieving data in which a modification history of the data storage system is accumulated and displaying modified contents of the data storage system related to the storage position before

the time at Fig. 3, sign 69, Figs. 14-16, and col. 30, lines 32-52. However, sign 69 in Fig. 3 is merely a history table that includes a list of hosts that have queried the port as they entered the network, and the other portions merely disclose details regarding menu bars positioned across the top of a management window including an action menu that allows a user to define and edit various options as well as display various information. These portions do not disclose or suggest anything related to retrieving data in which a modification history of the data storage system is accumulated, as recited in the claims of the present application. These portions merely disclose a management window comprising a GUI for managing network devices and access to data stored on the storage system and a history table with hosts that have queried the port as they entered the network.

Moreover, the Examiner asserts that Blumenau et al. discloses retrieving data in which a performance history of a logical unit is accumulated and displaying a performance of a logical volume after the time in Figs. 14 and 17, and col. 9, lines 8-38. However, these portions merely disclose the management window for managing network devices mentioned previously, and graphical representations of network devices and portions of data stored on the system, how data is stored on the storage system, and levels of detail on how network devices are interconnected in the storage system, as well as that the storage devices may be apportioned into volume sets where references to the volumes in the storage devices by the HBAs may be performed using logical unit numbers, and details on the history table mentioned previously. This is not retrieving data in which a performance history of a logical unit

is accumulated, as recited in the claims of the present application. These portions of Blumenau et al. do not disclose or suggest anything related to a performance history of a logical unit or displaying a performance of a logical volume after a time.

Regarding claim 16, the Examiner asserts that the cited references disclose retrieving by a management server, association between a logical disk unit and the file that was stored in the unit from contents of a configuration information database and indicating a relationship between the capacity of the logical disk unit and the size of the file in point of time series in Blumenau et al. col. 8, lines 12-27, col. 9, lines 8-22, col. 33, lines 42-58, and in Sakakura et al. col. 2, lines 46-59 and col. 4, lines 43-58. However, these portions of the cited references merely disclose that the storage system may determine whether a received request should be serviced based on the configuration data and as noted previously, that the storage devices may be apportioned into volume sets and made available to one or more of the HBAs or the host processor, and that the CLI based user interface may include a set of commands having a format of COMMAND "action" where the COMMAND is a name of the executable CLI and the actions are subcommands that can be used to update the configuration database or display configuration information maintained in the database of the storage system, and as noted previously that Sakakura et al. includes an exclusive control unit among the computers for performing an exclusive control for a shared resource shared among the plurality of computers connected through a network, and a software composition diagram of programs installed in the computer including an application program utilizing such a shared resource as a

database shared among a plurality of computers, and an exclusive control program for carrying out exclusive control for the shared resource. This is not receiving by a management server, association between a logical disk unit and a file that was stored in the unit from contents of a configuration information database, as recited in the claims of the present application. Further, these portions of the cited references do not disclose or suggest anything related to the association indicating a relationship between the capacity of the logical disk unit and the size of the file in point of time series.

The Examiner further asserts that these same cited portions of Blumenau et al. and Sakakura et al. disclose a configuration information database that accumulates event information of the multiple external storage systems via the external connection interface in point of time series. However, none of the portions of the cited references disclose or suggest anything related to a configuration information database that accumulates event information of the multiple external storage systems, as recited in the claims of the present application. Further, these portions do not disclose or suggest accumulating the event information via an external connection interface and point of time series.

Regarding claims 3, 4, 6-8, 10, 11, 13, 14, 17, 19 and 21-24, Applicants submit that these claims are dependent on one of independent claims 2, 5, 9, 12, 16, 18 and 20 and, therefore, are patentable at least for the same reasons noted previously regarding these independent claims. For example, Applicants submit that none of the cited references disclose or suggest where the management server

acquires configuration information of all external storage systems and point of time series and stores it in the database managed by the management server using the exclusive control command, or where a time series acquisition is made with a simultaneous and periodic inquiry into multiple external storage systems as moments, or where an external storage system that is an object of a change of its configuration information is recognized and the exclusive control command is issued to only the external storage system, or where the management server part makes the event information of the multiple external storage systems and the host logical configuration information correspond to each other when they are accumulated in the configuration information database and point of time series.

Accordingly, Applicants submit that none of the cited references, taken alone or in any proper combination, disclose, suggest or render obvious the limitations in the combination of each of claims 1-24 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

In view of the foregoing amendments and remarks, Applicants submit that claims 1-24 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the

U.S. Application No. 10/077,966

deposit account of Mattingly, Stanger, Malur & Brundidge, P.C., Deposit Account No. 50-1417 (referencing attorney docket no. 520.41229X00).

Respectfully submitted,

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.

A handwritten signature in dark ink, appearing to read 'F. Bailey', is written above a horizontal line.

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